

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|                        |  |                  |                  |
|------------------------|--|------------------|------------------|
| In Re:                 | Paul Mattackal Verghese                                | Confirmation No: | 6972             |
| Serial No:             | 10/743,238   | Group:           | 2872             |
| Filed:                 | December 22, 2003                                      | Examiner:        | Chang, Audrey Y. |
| For:                   | Dual Membrane Single Cavity<br>Fabry Perot MEMS Filter |                  |                  |
| Customer No.:          | 25263  |                  |                  |
| Attorney<br>Docket No. | 0005.1120US1   |                  |                  |

### **AFTER FINAL AMENDMENT UNDER RULE 116**

Mail Stop Amendment  
**Commissioner for Patents**  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

In response to the pending final Office Action, mailed August 3, 2005 (Paper No. 08022005), and in view of the accompanying Request for Reconsideration, please amend the above-captioned patent application as follows:

-amendments to the claims are reflected in the listing of claims in section a);

Finally, reconsideration is requested in view of the remarks set forth in section b).

A three-month extension is requested for this response.

This listing of claims will replace all prior versions and listings of claims in this application:

a.) Listing of Claims

1. (currently amended) A single cavity dual membrane Fabry-Perot filter comprising:  
a first membrane device comprising: a first membrane holding a first mirror structure, a first substrate for supporting the first membrane and defining a first electrostatic cavity between the first membrane and the first substrate, an electrostatic voltage between the first membrane and the first substrate causing deflection of the first membrane relative to the first substrate; and  
a second membrane device comprising: ~~with~~ a second membrane holding a second mirror structure, which is opposed the first mirror structure, to thereby define a Fabry-Perot cavity between the first mirror structure and the second mirror structure, a second substrate for supporting the second membrane and defining a second electrostatic cavity between the second membrane and the second substrate, an electrostatic voltage between the second membrane and the second substrate causing deflection of the second membrane relative to the second substrate.
2. (Previously presented) A Fabry-Perot filter as claimed in claim 1, further comprising a spacer between the first membrane device and the second membrane device for controlling a size of the Fabry-Perot cavity.
3. (cancelled)
4. (Previously presented) A Fabry-Perot filter as claimed in claim 1, wherein the first mirror structure and the second mirror structure are flat mirrors.
5. (Previously presented) A Fabry-Perot filter as claimed in claim 1, wherein at least one of the first mirror structure and the second mirror structure is curved mirror structure.

6. (Previously presented) A Fabry-Perot filter as claimed in claim 1, wherein, the both the first mirror structure and the second mirror structure are curved mirrors.
7. (Previously presented) A Fabry-Perot filter as claimed in claim 1, wherein the membrane devices comprise respective substrates, the membranes being deflected by the establishment of electrostatic drive voltages between the substrates and the membranes.
8. (currently amended) A Fabry-Perot filter as claimed in claim 7, further comprising an optical port through ~~the substrate of~~ at least one of the first ~~membrane devices~~ substrate and the second ~~membrane device~~ substrate.
9. (Previously presented) A Fabry-Perot filter as claimed in claim 1, wherein the mirror structures comprise highly reflecting dielectric mirrors.
10. (currently amended) A Fabry-Perot filter as claimed in claim 1, wherein a drive voltage generator establishes a voltage in the first electrostatic cavity and the second electrostatic cavity ~~between the substrates of the membranes and the membranes~~.
11. (Previously presented) A Fabry-Perot filter as claimed in claim 1, wherein a drive voltage generator establishes a drive voltage between the membrane of the first membrane device and the membrane of the second membrane device.
12. (cancelled)
13. (cancelled)
14. (currently amended) A Fabry-Perot filter as claimed in claim 1, wherein first membrane comprises flexures enabling the ~~electrostatic~~ deflection of the first membrane relative to the first substrate and second membrane comprises flexures enabling the ~~electrostatic~~ deflection of the second membrane relative to the second substrate.

15. (cancelled)

16. (cancelled)

17. (currently amended) A Fabry-Perot filter as claimed in claim ~~16~~ 1, further comprising a first optical port through the first substrate and a second optical port through the second substrate.

c.) Remarks

Claims 1, 2, 4-11, 14, and 17 are pending in this application. Claims 1, 8, 10, 14, and 17 have been amended in various particulars as indicated hereinabove. Claims 3, 12, 13, 15, and 16 have been cancelled.

The amendment filed on June 10, 2008 was objected to under 35 U.S.C. 132(a) for introducing new matter. Also, the drawings were objected to under 37 CFR 1.81(a) as not showing every feature of the invention specified in the claims and claims 8 and 17 were objected to. Finally, claim 14 was rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification. These matters are addressed in an accompanying petition under Rule 181.

Claims 10 was objected to because of informalities. Claim 10 has been amended to overcome these objections.

Turning now to the prior art rejections, a number of pending rejections exist. Of these rejections, probably the only relevant one, based on the amendment of the pending claims, is the rejection of claims 13-17 under 35 U.S.C. § 103(a) as being unpatentable over the Russell patent in view of the Flanders patent.

This rejection, as it applies to the claims as amended, is respectfully traversed.

Claim 1 requires first and second membrane devices with corresponding substrates and membranes and electrostatic cavities. This dual membrane device structure is not disclosed by either of these two applied references.

Thus, Applicant respectfully requests withdrawal of this rejection.

Application No.: 10/743,238  
Amendment dated: June 5, 2006  
Reply to Office Action of August 3, 2005  
Attorney Docket No.: 0005.1120US1

Applicant believes that the present application is in condition for allowance. A Notice of Allowance is respectfully solicited. Should any questions arise, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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